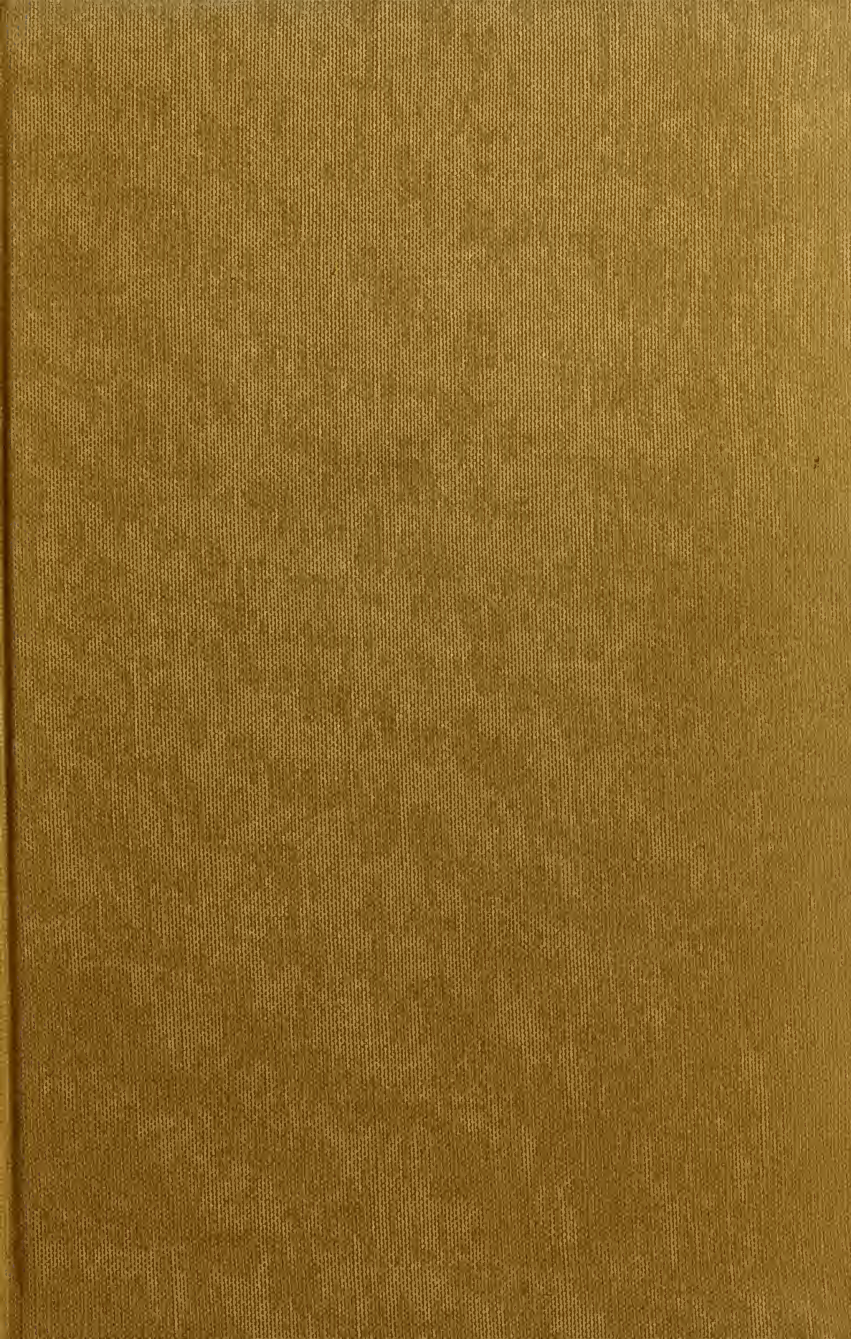






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EXPERIMENT STATION LIBRARY

INSPECTION OF COMMERCIAL FERTILIZERS

MADE FOR THE STATE DEPARTMENT OF AGRICULTURE

The inspection of commercial fertilizers reported in this bulletin was made under the direction of the Honorable Andrew L. Felker, Commissioner of Agriculture. The state inspector, Mr. Eugene D. Sanborn, collected samples of 109 brands of fertilizer materials which were offered for sale by dealers or had been delivered to consumers during the year ending June, 1932. The general character of the fertilizer materials collected is shown by the following classification:

Complete fertilizer	85
Superphosphate (acid phosphate)	6
Nitrate of Soda	1
Sulphate of ammonia	2
Ground bone	4
Tankage	1
Natural manures	10

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THE FERTILIZER LAW

The New Hampshire fertilizer law applies to all fertilizer materials offered for sale, whether mixed materials in the form of complete fertilizers or unmixed materials as superphosphate (acid phosphate), nitrate of soda, ground bone, tankage, etc. Under the provisions of the law every

manufacturer or dealer who shall sell or offer for sale any fertilizer material shall furnish with each lot or package a clearly printed statement certifying the brand name under which it is sold, the name and address of the manufacturer, the number of net pounds the package contains and a chemical analysis stating the minimum percentages of nitrogen, of available phosphoric acid and of water soluble potash. No person shall sell or offer for sale any pulverized leather, hair or wool waste, peat, garbage tankage, or any inert material whatsoever, without an explicit printed statement of the fact conspicuously fixed to every package of such material. The state official in charge of the administration of the fertilizer law is the Commissioner of Agriculture.

TABLE I

Formula	Number of brands	Average per cent nitrogen	Average per cent total phosphoric acid	Average per cent available phosphoric acid	Average per cent water soluble potash	Average retail price per ton
2—8—10	3	2.19	8.92	8.40	10.09	\$35.40
2—10—2	5	2.06	11.06	10.23	2.09	30.00
2—12—4	2	2.15	13.15	12.52	4.29	42.50
2—12—6	1	2.46	13.06	12.97	6.90	28.80
3—10—4	3	3.13	10.99	10.23	4.06	35.20
3—10—6	1	3.45	10.52	10.12	6.94	37.00
4—6—10	1	4.33	6.75	6.55	10.08	44.00
4—8—4	13	4.07	9.01	8.30	4.04	35.80
4—8—7	4	4.02	8.93	8.29	6.87	35.50
4—8—8	1	4.49	8.49	8.31	9.33	31.20
4—8—10	12	4.09	8.87	8.30	9.95	41.80
4—10—5	1	4.17	10.91	10.00	5.31	37.00
4—12—4	3	4.26	12.94	12.52	4.62	31.10
5—8—7	15	5.09	8.95	8.36	6.96	41.20
5—8—10	1	5.07	8.65	8.23	10.23	55.00
5—10—4	1	5.07	11.22	10.12	4.00	120.00
5—16—7	1	5.33	17.23	16.41	6.91	40.00
7—6—6	5	7.15	6.64	6.35	5.77	43.60
7—8—5	1	6.88	9.59	8.65	5.17	37.00
7—8—6	1	7.29	8.62	8.40	6.86	45.00
8—6—2	1	7.80	8.75	8.25	2.37	60.00
8—16—14	2	8.17	16.43	15.98	14.43	53.50
8—16—16	1	8.03	16.67	16.33	16.98	53.00
10—16—20	1	9.80	16.54	16.20	20.10	62.00

In Table I are given the grades of complete fertilizers collected, the number of brands found in each grade, the average analysis of each grade and the average retail price per ton. This table is prepared to call the purchaser's attention to the greater values to be secured in certain of the higher grades.

CONFORMITY TO GUARANTEE

Forty of the 109 brands analyzed were found to contain less than the guarantee of one or more of the three constituents. The total number of guarantees on the 109 brands was 307, the total number of deficiencies 46, the per cent of the guarantees deficient 15.0. In last year's inspection this figure was 11.7 per cent. The previous year it was 13.0 per cent. Many of the deficiencies were comparatively negligible, the small deficiency in one constituent being offset in value by overrun in other constituents.

A detailed summary of the deficiencies in the 40 brands which failed to meet the guarantees follows:

	Number of Brands	Total Deficiencies
Nitrogen, total phosphoric acid, available phosphoric acid and potash	0	0
Nitrogen, total phosphoric acid and potash	0	0
Nitrogen, available phosphoric acid and potash	1	3
Nitrogen, total phosphoric acid and avail- able phosphoric acid	0	0
Nitrogen and total phosphoric acid	0	0
Nitrogen and available phosphoric acid	0	0
Nitrogen and potash	2	4
Nitrogen	10	10

Total phosphoric acid, available phosphoric acid and potash	0	0
Total phosphoric acid and potash	0	0
Available phosphoric acid and potash	0	0
Potash	21	21
Total phosphoric acid and available phosphoric acid	2	4
Total phosphoric acid	2	2
Available phosphoric acid	2	2
	40	46

NITROGEN DEFICIENCIES

One hundred three brands were guaranteed to contain nitrogen in amounts varying from 1.00 per cent to 20.56 per cent. Thirteen brands failed to meet the guarantee. Five of these brands were deficient less than 2 pounds of nitrogen per ton. Six were deficient more than 2 pounds but less than 4.5 pounds per ton. One was deficient 6.2 pounds per ton and one 6.6 pounds per ton. The greatest deficiency is equivalent to only about \$1.00 per ton, assuming the nitrogen present in the inorganic form.

PHOSPHORIC ACID DEFICIENCIES

One hundred seven brands were guaranteed to contain phosphoric acid. Nine brands failed to meet the guarantees. Two were deficient in total phosphoric acid, five in available phosphoric acid and two in both total and available phosphoric acid. None of these deficiencies amount to as much as \$1.00 per ton.

POTASH DEFICIENCIES

Ninety-five samples were guaranteed to contain potash. Twenty-four failed to meet the guarantee. None of the deficiencies amount to as much as \$1.00 per ton.

UNIFORMITY IN GUARANTEES

The movement for national uniformity in stating fertilizer guarantees has made rapid progress. There are now not more than four states which have not adopted the proposed method. The changes were sponsored not only by the state officials charged with the enforcement of the fertilizer laws but also by the National Fertilizer Association, the leading agricultural papers and the Association of Official Agricultural Chemists. The principal changes which have been put into effect were those proposed in last year's bulletin as follows:

1. When fertilizers are registered with the state fertilizer control official the guaranty shall be stated in terms of nitrogen and not in terms of ammonia.
2. Grades or analyses of mixed fertilizers shall be expressed in whole units and not in fractions or decimals.
3. Trade or brand names shall include the numerals giving the minimum percentage of each plant food in the order — nitrogen, available phosphoric acid, and potash.

Results of the change already apparent are the elimination of fractional guarantees, a fractional increase in the amount of nitrogen in many brands and a decrease in the uneconomical multiplicity of grades.

In the tabulation of the analyses in the following pages deficiencies of two-tenths of one per cent or more are shown in bold-faced type. The names of the manufacturers are arranged alphabetically, and under the manufacturer the different brands are arranged alphabetically or numerically by formula.

	NITROGEN		PHOSPHORIC ACID				POTASH	
	Guaranteed	Found	Total		Available		Guaranteed	Found
			Guaranteed	Found	Guaranteed	Found		
AMERICAN AGRICULTURAL CHEMICAL Co. NEW YORK CITY								
AAA Complete Manure with 10% Potash 4-8-10	4.00	4.09	.....	8.76	8.00	8.16	10.00	10.00
AAA Corn Favorite 3-10-4	3.00	3.14	.....	11.17	10.00	10.52	4.00	3.68
AAA Double Strength Fertilizer 8-16-14	8.00	8.31	.....	16.91	16.00	16.40	14.00	14.00
AAA Monarch Fertilizer 4-8-4	4.00	3.95	.....	8.53	8.00	8.01	4.00	3.80
AAA Peerless Potato Manure 4-8-7	4.00	4.06	.....	9.54	8.00	8.67	7.00	7.00
AAA Prolific 10% Potash Fertilizer 2-8-10	2.00	2.13	.....	8.91	8.00	8.16	10.00	10.09
AAA Superphosphate 16% .....	.....	.....	.....	17.55	16.00	16.67	.....	.....
AAA Top Dresser 7-6-6	7.00	7.20	.....	7.11	6.00	6.57	6.00	5.64
Agrico for Aroostook 5-8-7	5.00	5.19	.....	8.87	8.00	8.17	7.00	6.77
Agrico for Corn 3-10-6	3.00	3.45	.....	10.52	10.00	10.12	6.00	6.94
Agrico for Lawns, Trees and Shrubs 7-6-6	7.00	7.00	.....	7.03	6.00	6.57	6.00	6.00
Agrico for New England 4-8-10	4.00	4.13	.....	9.05	8.00	8.70	10.00	10.11
Agrico for Truck 4-10-5	4.00	4.17	.....	10.91	10.00	10.00	5.00	5.31
Aroostook Potato Manure 5-8-7	5.00	5.10	.....	9.01	8.00	8.10	7.00	6.79
Bowker's All Round Fertilizer 3-10-4	3.00	3.12	.....	10.94	10.00	10.22	4.00	4.15
Bowker's Farm and Garden Phosphate 2-10-2	2.00	2.12	.....	10.82	10.00	10.15	2.00	1.91
Bowker's Stockbridge Early Crop Manure 5-8-7	5.00	5.09	.....	8.81	8.00	8.07	7.00	6.59

Bowker's Stockbridge Potato and Vegetable Manure									
4-8-10	4.00	4.08	.....	9.03	8.00	8.55	10.00	10.00	
Bradley's Complete Manure with 10% Potash 4-8-10	4.00	4.00	.....	9.10	8.00	8.28	10.00	10.00	
Bradley's Eclipse Fertilizer 2-10-2	2.00	2.13	.....	11.07	10.00	10.35	2.00	1.87	
Bradley's XL Fertilizer 3-10-4	3.00	3.14	.....	11.14	10.00	10.84	4.00	3.64	
E. Frank Coe's Standard Potato Fertilizer 4-8-10	4.00	4.04	.....	8.64	8.00	8.16	10.00	10.00	
Pulverized Sheep and Goat Manure	1.23	1.27	1.00	0.80	0.70	0.68	2.00	2.43	
APOTHECARIES HALL Co. WATERBURY, CONN.									
4-6-10	4.00	4.33	.....	6.75	6.00	6.55	10.00	10.08	
Liberty High Grade Market Gardeners 5-8-7	5.00	5.22	.....	8.78	8.00	8.54	7.00	7.06	
Liberty Market Gardeners Special 4-8-4	4.00	4.21	.....	8.91	8.00	8.61	4.00	4.49	
Liberty Potato and Vegetable 2-8-10	2.00	2.24	.....	8.85	8.00	8.53	10.00	10.88	
Liberty Special Fertilizer for Fruit 7-8-6	7.00	7.29	.....	8.62	8.00	8.40	6.00	6.86	
Superphosphate .....	.....	.....	.....	17.82	16.00	17.38	.....	.....	
ATMOSPHERIC NITROGEN CORPORATION HOPEWELL, VA.									
Arcadian Nitrate of Soda	16.00	16.07	.....	.....	.....	.....	.....	.....	
JOSEPH BRECK & SONS BOSTON, MASS.									
Breck's Ram's Head Brand Pulverized Sheep Manure ...	1.46	1.40	0.75	0.77	.....	0.63	3.00	3.10	

	NITROGEN		PHOSPHORIC ACID				POTASH	
	Guaranteed	Found	Total		Available		Guaranteed	Found
			Guaranteed	Found	Guaranteed	Found		
BURLINGTON RENDERING Co. BURLINGTON, Vt.								
Burlington 2-8-10 Fertilizer	2.00	2.19	.....	9.01	8.00	8.52	10.00	9.29
Burlington 3-10-4 Fertilizer	3.00	3.05	.....	11.00	10.00	10.05	4.00	4.05
Burlington 4-8-4 Fertilizer	4.00	3.92	.....	8.81	8.00	8.21	4.00	4.08
Burlington 4-8-7 Fertilizer	4.00	4.00	.....	8.48	8.00	8.06	7.00	6.77
Burlington 4-8-10 Fertilizer	4.00	4.00	.....	8.63	8.00	8.11	10.00	9.47
Burlington 4-12-4 Fertilizer	4.00	4.19	.....	12.85	12.00	12.02	4.00	4.16
CONNECTICUT COKE Co. NEW HAVEN, CONN.								
Arcadian Sulphate of Ammonia	20.56	20.93	.....	.....	.....	.....	.....	.....
CONSOLIDATED RENDERING Co. BOSTON, MASS.								
Corenco 8-16-14	8.00	8.02	.....	15.95	16.00	15.55	14.00	14.86
Corenco Sheep Manure	1.23	1.33	0.50	0.94	.....	0.86	2.00	2.54

Ground Bone	2.05	1.74	22.00	26.53	.....	.....	.....	.....	.....
Ground Tankage	7.41	8.31	9.15	9.65	.....	.....	.....	.....	.....
New England 8-6-2 Putting Green Special	8.00	7.80	.....	8.75	6.00	8.25	2.00	2.37	.....
Superphosphate 16% .....	.....	.....	.....	17.58	16.00	16.70	.....	.....	.....
JOHN C. DOW CO. BOSTON, MASS.									
Dow's 4-8-4 Fertilizer	4.00	4.02	.....	9.56	8.00	8.41	4.00	3.82	.....
Dow's 4-8-10 Fertilizer	4.00	4.08	.....	9.07	8.00	8.17	10.00	10.00	.....
Dow's 5-8-7 Fertilizer	5.00	5.14	.....	9.09	8.00	8.39	7.00	7.13	.....
Dow's Pure Ground Bone	2.00	2.80	24.00	25.33	.....	.....	.....	.....	.....
EASTERN STATES FARMERS' EXCHANGE SPRINGFIELD, MASS.									
Eastern States 2-12-6 Open Formula Fertilizer	2.00	2.46	.....	13.06	12.00	12.97	6.00	6.90	.....
Eastern States 4-8-8 Open Formula Fertilizer	4.00	4.49	.....	8.49	8.00	8.31	8.00	9.33	.....
Eastern States 4-12-4 Open Formula Fertilizer	4.00	4.68	.....	13.09	12.00	12.89	4.00	5.65	.....
Eastern States 8-16-16 Low Chlorine Special	8.00	8.03	.....	16.67	16.00	16.33	16.00	16.98	.....
Eastern States 32% Double Superphosphate .....	.....	.....	32.50	32.38	32.00	32.23	.....	.....	.....
ESSEX FERTILIZER CO. BOSTON, MASS.									
Essex A1 Super 2-10-2	2.00	2.02	.....	11.38	10.00	10.20	2.00	2.33	.....
Essex 3-10-4 Fish Brand Fertilizer for All Crops	3.00	3.08	.....	11.02	10.00	10.31	4.00	4.05	.....
Essex 4-8-4 Market Garden	4.00	4.01	.....	9.25	8.00	8.06	4.00	3.86	.....

	NITROGEN		PHOSPHORIC ACID				POTASH	
	Guaranteed	Found	Total		Available		Guaranteed	Found
			Guaranteed	Found	Guaranteed	Found		
Essex 4-8-10 Peerless Potato Manure	4.00	4.15	.....	8.83	8.00	8.23	10.00	9.71
Essex 5-8-7 Complete Manure	5.00	4.89	.....	9.11	8.00	8.39	7.00	6.88
HUDSON VALLEY FUEL CORPORATION TROY, N. Y.								
Nusoil Sulphate of Ammonia	20.50	20.96	.....	.....	.....	.....	.....	.....
INTERNATIONAL AGRICULTURAL CORP. WOBURN, MASS.								
Bone Meal	2.47	2.52	22.00	24.40	.....	.....	.....	.....
International 3-10-4	3.00	3.01	.....	9.96	10.00	9.46	4.00	4.39
International 4-8-4	4.00	4.01	.....	8.22	8.00	8.00	4.00	4.00
International 4-8-10	4.00	4.22	.....	8.58	8.00	8.22	10.00	10.05
International 5-8-7	5.00	4.89	.....	8.54	8.00	8.00	7.00	7.00
International Caribee 5-8-7	5.00	5.28	.....	8.58	8.00	8.00	7.00	7.07
International 7-6-6	7.00	7.25	.....	6.31	6.00	6.11	6.00	5.78
International 10-16-20	10.00	9.80	.....	16.54	16.00	16.20	20.00	20.10
International 16% Superphosphate .....	.....	.....	.....	17.38	16.00	16.68	.....	.....

LOWELL FERTILIZER Co. BOSTON, MASS.								
Lowell 3-10-4 Animal Brand for All Crops	3.00	3.27	.....	11.50	10.00	10.15	4.00	4.39
Lowell 4-8-4 Corn and Vegetable	4.00	4.16	.....	8.99	8.00	8.19	4.00	4.00
Lowell 5-8-7 Market Garden Manure	5.00	5.00	.....	9.11	8.00	8.19	7.00	6.73
Lowell 7-6-6 Top Dressing	7.00	7.00	—	6.15	6.00	6.00	6.00	5.79
MERRIMACK FARMERS' EXCHANGE CONCORD, N. H.								
Merrimack Brand 2-10-2	2.00	2.03	.....	11.05	10.00	10.13	2.00	2.31
Merrimack Brand 3-10-4	3.00	3.22	.....	11.17	10.00	10.28	4.00	4.16
Merrimack Brand 4-8-4	4.00	4.14	.....	9.44	8.00	8.49	4.00	4.00
Merrimack Brand 4-8-7	4.00	4.02	.....	9.07	8.00	8.16	7.00	6.72
Merrimack Brand 4-8-10	4.00	4.08	.....	9.27	8.00	8.59	10.00	9.86
Merrimack Brand 5-8-7	5.00	5.17	.....	9.34	8.00	9.02	7.00	7.00
Merrimack Brand 5-16-7 Special Potato Fertilizer	5.00	5.33	.....	17.23	16.00	16.41	7.00	6.91
Merrimack Brand 7-6-6 Top Dressing	7.00	7.31	.....	6.62	6.00	6.50	6.00	5.62
Merrimack Brand 7-8-5	7.00	6.88	.....	9.59	8.00	8.65	5.00	5.17
NATURAL GUANO Co. AURORA, ILL.								
Sheep Head Brand Pulverized Sheep Manure	2.00	2.34	.....	1.29	1.00	1.11	2.00	2.75

	NITROGEN		PHOSPHORIC ACID				POTASH	
	Guaranteed	Found	Total		Available		Guaranteed	Found
			Guaranteed	Found	Guaranteed	Found		
NEW ENGLAND FERTILIZER Co. BOSTON, MASS.								
New England 4-8-4 Potato and Vegetable Manure	4.00	4.09	.....	9.27	8.00	8.24	4.00	4.00
New England 4-8-10 Complete Manure	4.00	4.12	.....	8.95	8.00	8.23	10.00	10.00
New England 5-8-7 Market Garden Manure	5.00	5.18	.....	9.32	8.00	8.63	7.00	7.00
NEW ENGLAND RENDERING Co. BRIGHTON, MASS.								
Ground Bone	2.08	2.12	25.17	26.25	.....	.....	.....	.....
PACIFIC MANURE & FERTILIZER Co. SAN FRANCISCO, CAL.								
Groz-It Brand Pulverized Sheep Manure	1.50	1.30	.....	0.65	0.75	0.49	3.00	2.51

	NITROGEN		PHOSPHORIC ACID				POTASH	
	Guaranteed	Found	Total		Available		Guaranteed	Found
			Guaranteed	Found	Guaranteed	Found		
Hubbard's Corn and Grain Fertilizer 2-12-4	2.00	2.13	.....	13.01	12.00	12.51	4.00	4.19
Hubbard's Potato Fertilizer 5-8-7	5.00	5.00	.....	8.98	8.00	8.50	7.00	7.10
Hubbard's Superphosphate .....	.....	.....	.....	18.47	16.00	18.23	.....	.....
Portland Brand 4-8-4	4.00	4.20	.....	8.99	8.00	8.10	4.00	4.00
Portland Brand 4-8-7	4.00	4.00	.....	8.62	8.00	8.28	7.00	7.00
Sheep and Goat Manure	1.35	1.44	.....	1.05	0.75	0.96	3.75	3.96
SWIFT & Co. BALTIMORE, MD.								
Vigoro for Lawns, Gardens, Flowers, Shrubbery, Trees	4.00	3.92	.....	12.89	12.00	12.64	4.00	4.04
TENNESSEE CORPORATION LOCKLAND, O.								
Loma	5.00	5.07	.....	11.22	10.00	10.12	4.00	4.00

VIRGINIA CAROLINA CHEMICAL CORP. NEW YORK CITY									
V-C Aroostook Potato Grower 5-8-7	5.00	5.20	.....	9.19	8.00	8.63	7.00	7.00	
V-C Owl Brand Fertilizer 2-12-4	2.00	2.17	.....	13.29	12.00	12.52	4.00	4.39	
Sheep Manure	1.64	1.85	0.75	1.92	.....	1.84	1.50	2.48	
WALKER-GORDON FARMS JULIUSTOWN, N. J.									
Driconure 1-1-1	1.00	2.15	1.00	0.88	.....	0.77	1.00	1.82	



